

WHAT IS CLAIMED IS:

1. A level shift circuit, which performs level shift on a signal output from a first logic circuit operating on a first voltage to output the signal to a second logic circuit operating
5 on a second voltage, comprising:

a switching circuit which is configured to perform input control of the signal output from the first logic circuit and which comprises:

a first switching device; and
10 a second switching device, which is connected in series with the first switching device;

a first control circuit which operates on the first voltage and which is configured to control operation of the first switching device depending on the first voltage;

15 a second control circuit which operates on the second voltage and which is configured to control operation of the second switching device depending on the second voltage; and

a latch circuit which operates on the second voltage and which is configured to perform level shift on amplitude of the
20 signal output from the first logic circuit via the switching circuit so as to be the same as the second voltage and to latch a signal level of the level-shifted signal and output the signal to the second logic circuit,

wherein when the first voltage is not greater than a
25 predetermined first voltage, the first control circuit allows the first switching device to turn off, and when the first voltage is greater than the predetermined first voltage, the

first control circuit allows the first switching device to turn on, and wherein when the second voltage is not greater than a predetermined second voltage, the second control circuit allows the second switching device to turn off, and when the second
5 voltage is greater than the predetermined second voltage, the second control circuit allows the second switching device to turn on.

2. A level shift circuit, which performs level shift on
10 a signal output from a first logic circuit operating on a first voltage to output the signal to a second logic circuit operating on a second voltage, comprising:

a switching circuit which is configured to perform input control of the signal output from the first logic circuit and
15 which comprises:

a first switching device; and

a second switching device, which is connected in series with the first switching device;

a first control circuit which operates on applying the
20 first voltage thereto and which is configured to control operation of the first switching device depending on the first voltage; and

a latch circuit which operates on the second voltage and which is configured to perform level shift on amplitude of the
25 signal output from the first logic circuit via the switching circuit so as to be the same as the second voltage and to latch a signal level of the level-shifted signal and output the signal

to the second logic circuit,

wherein when the first voltage is not greater than a predetermined first voltage, the first control circuit allows the first switching device to turn off, and when the first
5 voltage is greater than the predetermined first voltage, the first control circuit allows the first switching device to turn on, and wherein the second switching device comprises a MOS transistor, and the second voltage is applied to a gate of the MOS transistor.

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3. The level shift circuit according to Claim 1, further comprising:

a latch control circuit which operates on the second voltage and which is configured to control operation of the
15 latch circuit depending on the first voltage,

wherein the latch control circuit outputs a predetermined signal to the latch control circuit when the first voltage is not greater than the predetermined first voltage.

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4. The level shift circuit according to Claim 2, further comprising:

a latch control circuit which operates on the second voltage and which is configured to control operation of the latch circuit depending on the first voltage,

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wherein the latch control circuit output a predetermined signal to the latch control circuit when the first voltage is not greater than the predetermined first voltage.

5. The level shift circuit according to Claim 1, wherein
when the first voltage is greater than the predetermined first
voltage, the latch control circuit performs level shift on the
5 amplitude of the signal output from the first logic circuit via
the switching circuit so as to be the same as the second voltage.

6. The level shift circuit according to Claim 2, wherein
when the first voltage is greater than the predetermined first
10 voltage, the latch control circuit performs level shift on the
amplitude of the signal output from the first logic circuit via
the switching circuit so as to be the same as the second voltage.